RECEIVED
OCT 14 1997
DEPT OF ECOLOGY

State of Washington
Application for a Water Right

Please follow the attached instructions to avoid unnecessary delays.

For Ecology Use
Fee Paid 10.00
Date 10/14/97 KFW

Section 1. APPLICANT - PERSON, ORGANIZATION, OR WATER SYSTEM

Name Cindy and Larry Mathisen Home Tel:(253) 572 - 7635
Mailing Address 939 Ridgewood Ave S. Work Tel:( ) SAME AS ABOVE
City Tacoma State WA Zip+4 98405 + 3364 FAX:( ) NONE

Section 2. CONTACT - PERSON TO CALL ABOUT THE APPLICATION

☒ Same as above

Name Home Tel:( ) -
Mailing Address Work Tel:( ) -
City State Zip+4 + FAX:( ) -
Relationship to applicant

Section 3. STATEMENT OF INTENT

The applicant requests a permit to use not more than 1.75 (☐ gallons per minute or ☒ cubic feet per second) from a ☒ surface water source or ☐ ground water source (check only one) for the purpose(s) of Personal Micro Hydro System - fire protection. **ATTACH A "LEGAL" DESCRIPTION OF THE PLACE OF USE.** (**See instructions.**) *NOTE: A tax parcel number or a plat number is not sufficient.*
Estimate a maximum annual quantity to be used in acre-feet per year: NON-CONSUMPTIVE

☐ Check if the water use is proposed for a short-term project. Indicate the period of time that the water will be needed:
From ___/___/___ to ___/___/___ YEAR AROUND

Section 4. WATER SOURCE

If SURFACE WATER	If GROUNDWATER
Name the water source and indicate if stream, spring, lake, etc. If unnamed, write "unnamed spring," "unnamed stream," etc.: Unnamed Stream Number of diversions: 1	A permit is desired for _____ well(s).
Source flows into (name of body of water): Middle Fork of Snoqualmie River	Size & depth of well(s):

LOCATION

Enter the north-south and east-west distances in feet from the point of diversion or withdrawal to the nearest section corner: Shown on map of property enclosed

¼ of	¼ of	Section	Township	Range(E/W)	County	If location of source is platted, complete below: Lot	Block	Subdivision
NE	NW	11	23	09	King	1	9023	KCSP# 28402OR

For Ecology Use Date Received: 10.14.97 Priority Date: 10.14.97
SEPA: Exempt/Not Exempt FERC License # Dept. Of Health #
Date Accepted As Complete 10.22.97 By AB Date Returned By WRIA: 7

ECY 040-1-14
Rev. 9/95 F

APPLICATION

Appl. No.: S1027853

Section 5. GENERAL WATER SYSTEM INFORMATION

A. Name of system, if named: Canyon 9513 or Other Micro Hydro System

B. Briefly describe your proposed water system. **(See instructions.)**

I plan to build a small sediment pond and a catch basin to divert the water needed to run above listed system. 60 feet of head is needed. I agree to keep the creek bed in its normal natural condition.

C. Do you already have any water rights or claims associated with this property or system? ☐ YES ☒ NO
PROVIDE DOCUMENTATION.

Section 6. DOMESTIC / PUBLIC WATER SUPPLY SYSTEM INFORMATION
(Completed for all domestic/public supply uses.)

A. Number of "connections" requested:_____ Type of connection _____
(Homes, Apartment, Recreational, etc.)

B. Are you within the area of an approved water system? ☐ YES ☒ NO
If yes, explain why you are unable to connect to the system. *Note: Regional water systems are identified by your County Health Department.*

Complete C. and D. only if the proposed water system will have fifteen or more connections.

C. Do you have a current water system plan approved by the Washington State Department of Health? ☐ YES ☐ NO
If yes, when was it approved? _____ Please attach the current approved version of your plan.

D. Do you have an approved conservation plan? ☐ YES ☐ NO
If yes, when was it approved? _____ Please attach the current approved version of your plan.

Section 7. IRRIGATION/AGRICULTURAL/FARM INFORMATION
(Complete for all irrigation and agriculture uses.)

A. Total number of acres to be irrigated: _____

B. List total number of acres for other specified agricultural uses:

Use_____Acres_____
Use_____Acres_____
Use_____Acres_____

C. Total number of acres to be covered by this application: _____

D. Family Farm Act (Initiative Measure Number 59, November 3, 1977)
Add up the acreage in which you have a controlling interest, including only:
‡ Acreage irrigated under water rights acquired after December 8, 1977;
‡ Acreage proposed to be irrigated under this application;
‡ Acreage proposed to be irrigated under other pending application(s).

1. Is the combined acreage greater than 2000 acres? ☐ YES ☐ NO
2. Do you have a controlling interest in a Family Farm Development Permit? ☐ YES ☐ NO
If yes, enter permit no:_____

E. Farm uses:
Stockwater - Total # of animals _____ Animal type _____ (If dairy cattle, see below)
Dairy - # Milking _____ # Non-milking _____

Section 8. WATER STORAGE

Will you be using a dam, dike, or other structure to retain or store water? ☒ YES ☐ NO

NOTE: If you will be storing 10 acre-feet or more of water and/or if the water depth will be 10 feet or more at the deepest point, and some portion of the storage will be above grade, you must also apply for a reservoir permit. You can get a reservoir permit application from the Department of Ecology.

Section 9. DRIVING DIRECTIONS

Provide detailed driving instructions to the project site.

I-90 East to Exit 34. At stop sign turn Left pass Ken's Truck Stop to T in the road. Take a Right this will be Lake Dorothy Rd. or Middlefork Road. Follow for 5 miles. Gated road on Right just before the bridge over the river is the entrance. Key is needed to enter please call.

Section 10. REQUIRED MAP

A. Attach a map of the project. **(See instructions.)**

Enclosed

Section 11. PROPERTY OWNERSHIP

A. Does the applicant own the land on which the water will be used? ☒ YES ☐ NO
If no, explain the applicant's interest in the place of use and provide the name(s) and address(es) of the owner(s):

B. Does the applicant own the land on which the water source is located? ☒ YES ☐ NO
If no, submit a copy of agreement:

I certify that the information above is true and accurate to the best of my knowledge. I understand that in order to process my application, I grant staff from the Department of Ecology access to the site for inspection and monitoring purposes. Even though I may have been assisted in the preparation of the above application by the employees of the Department of Ecology, all responsibility for the accuracy of the information rests with me.

Larry Mathisen — 10/10/97
Applicant (or authorized representative) — Date

Cindy Mathisen
Landowner for place of use (if same as applicant, write "same") — Date

Use this page to continue your answers to any questions on the application. Please indicate section number before answer.

We are returning your application for the following reason(s):	
_____ Examination fee was not enclosed	APPLICANT PLEASE RETURN TO CASHIER, PO BOX 5128, LACEY, WA 98509-5128
_____ Section number(s) _____ is/are incomplete	APPLICANT PLEASE RETURN TO THE APPROPRIATE REGIONAL OFFICE
Explanation:	
Please provide the additional information requested above and return your application by _____ _____ *(date).*	

Ecology staff_____ Date_____

To receive this document in alternative format, contact Lisa Newman at (360) 407-6604 (Voice) or (360) 407-6006 (TDD).

Cindy Mathisen
Larry Mathisen
939 Ridgewood Ave S.
Tacoma, WA 98405
(253) 572-7635

To Whom It May Concern:

Enclosed you will find my application for Water Rights, along with a map of my property.

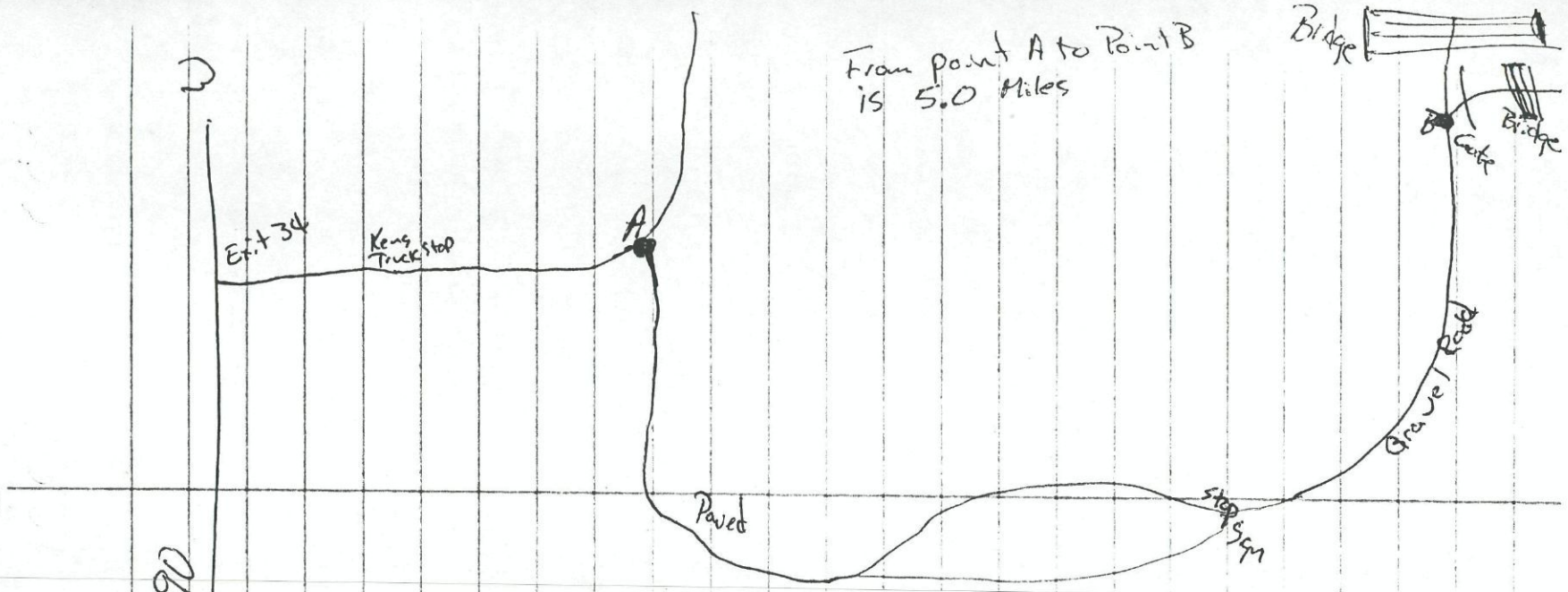
In this area there is no electricity so I would like to have a small personal micro hydro system. I would be using some of the water thru a generator and returning it back into my stream.

I am very much an environmentalist and it would be constructed in a consciousness manner that would preserve and protect the stream and surroundings.

I would like to proceed with my well and septic permits as soon as possible, your attention to this matter would be greatly appreciated.

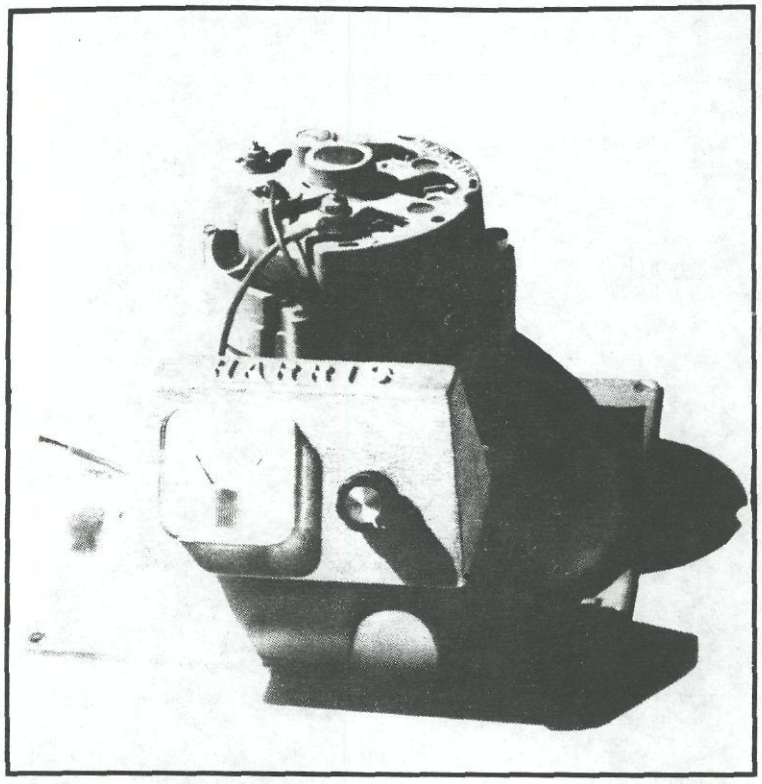
Sincerely,

Cindy Mathisen
Larry Mathisen



Due to Vandalism
Gate is Kept Locked
Please Let Us Know
When you plan to
Visit Site and we
will Meet you There

HARRIS HYDROELECTRIC SYSTEMS



A Line of Vertical Axis 12 Volt DC Pelton Generator Systems

- Operates efficiently on 10 to 600 feet of head
- Operates efficiently on 2 to 250 gallons/min. flow
- Available with site selected Delco alternator
- Available with efficient permanent magnet generator
  - The Pelton type runner is lost wax centrifugally cast of silicon bronze
  - The wheel is 70 to 90% efficient depending on nozzle size and head
  - Each wheel is individually balanced

The Harris system can be ordered to operate at 24 volts from 60' head and up. They are generally more efficient than when operating at 12 volts. It will also produce up to 650 watts continuously at the higher voltages. Alternator systems are between 35%-45% efficient depending on site conditions. Permanent magnet systems' efficiency is between 40-60%. The Permanent magnet systems are substantially more efficient than Delco systems at lower output, but require periodic brush replacement. Expect 25% higher output up to 10 amps. Systems below 20' head need P.M. generator. Delco systems are selected to meet exact site conditions by changing the interior winding of the alternator. All system hardware except electronics is guaranteed for 1 year for everything except abuse and silt erosion. All electronics are guaranteed for 3 months, but must be properly installed.

Delco Alternator Output Chart

(Pipe losses not included)

GPM	FEET OF HEAD						
	25	50	75	100	200	300	600
3	—	—	—	—	20	50	100
6	—	—	—	25	70	120	250
10	—	—	30	70	150	240	450
15	—	—	50	100	210	375	—
20	—	40	80	150	320	450	—
30	20	70	120	220	450	—	—
50*	65	120	200	350	—	—	—
100**	120	250	400	—	—	—	—

Output Figure In Watts
** 2 nozzle*
*** 4 nozzle*

Multiple nozzle arrangement allows more water to impact the runner resulting in greater output at any head and useable power at a much lower head. All Harris turbines come with a variety of different size nozzles. All multi nozzle systems come complete with sch. 40 PVC penstock. Generally, single nozzle Harris systems with under 2000 feet of feeder pipe require 2" pipe; 2 nozzle systems need a 3" pipe, and 4 nozzle systems require 4" pipe. This will keep pipe losses under 25%. All Harris turbines include 2 extra nozzles and instructions. Extra nozzles are available for $1.50 each and exist in increments of 1/32" from 1/8" to 7/16."

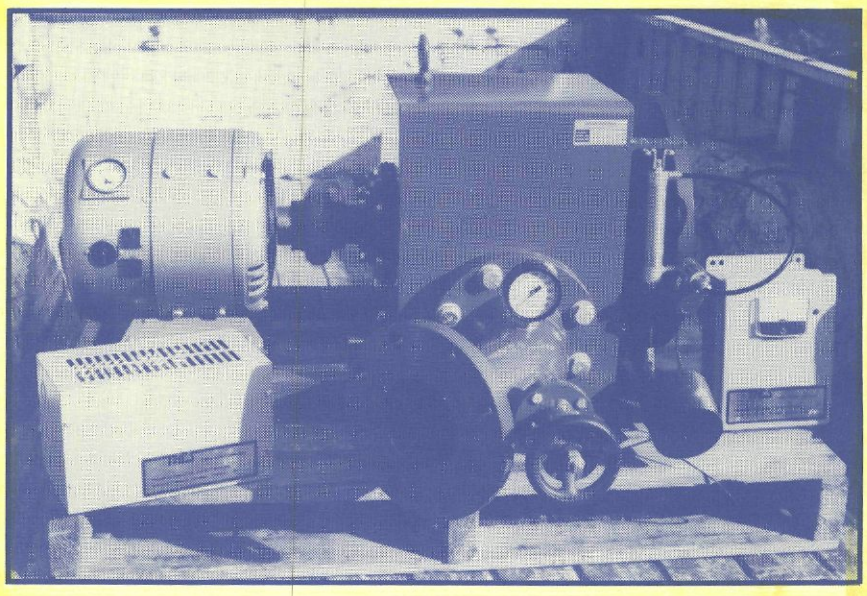
Product "E" — "Frequency Guard"

The purpose of the Thomson & Howe Frequency Guard is to protect electrical contacts for over/under frequency sensing on stand-alone power systems, to protect against overspeed or "runaway" when used with jet deflector.

Applicable systems: Stand alone systems with 1 KW to 500 KW in size.

Frequency Limit Adjustment: High and low trip limits separately adjustable from 0.5 hertz deviation to 20 hertz deviation.

Features: 120 volt operation, Analog frequency meter 0-100 Hertz, adjustable over and under frequency trip points.



751-1 with 4 KW WINCO Generator, needle nozzle, jet deflector and Product "J" controller with frequency guard.

OPTIONAL EQUIPMENT

Jet Deflector, Overspeed Control:

The electronic Load Controller makes the Jet Deflector unnecessary for normal speed control. However, if the turbine runs unattended, automatic shutdown is important to protect generator bearings and armature from possible damage. Jet Deflectors, standard on Models 1525 and 2435, are offered for each of the smaller units. The Jet Deflector option includes bearing mounted deflector, weighted arm, hydraulic hold cylinder, and solenoid hold valve. The Thomson and Howe Frequency Guard unit must also be ordered for Jet Deflector control.

Runner Material:

The standard aluminum alloy runner provides excellent life with clean water at lower head. We recommend the bronze runner be ordered at heads above 250 feet.

Needle Nozzle Control:

The standard turbine is complete with fixed nozzles, which may be changed by shutting down the turbine. The Needle Nozzle offers infinite manual flow control. Any flow from 0 flow to design flow may be easily selected while the machine is running. The Needle Nozzle may be ordered with special hydraulic cylinders for automatic flow control. CANYON Needle Nozzles all have stainless steel needles and beaks for extremely long life.

Generator/Drive Assembly Factory Mounting:

Factory mounting of your selected generator and the proper drive assembly is available from CANYON. When this option is selected, we will ship a completely assembled and aligned turbine, generator, and drive system, making installation easier.

Extra Fixed Nozzles:

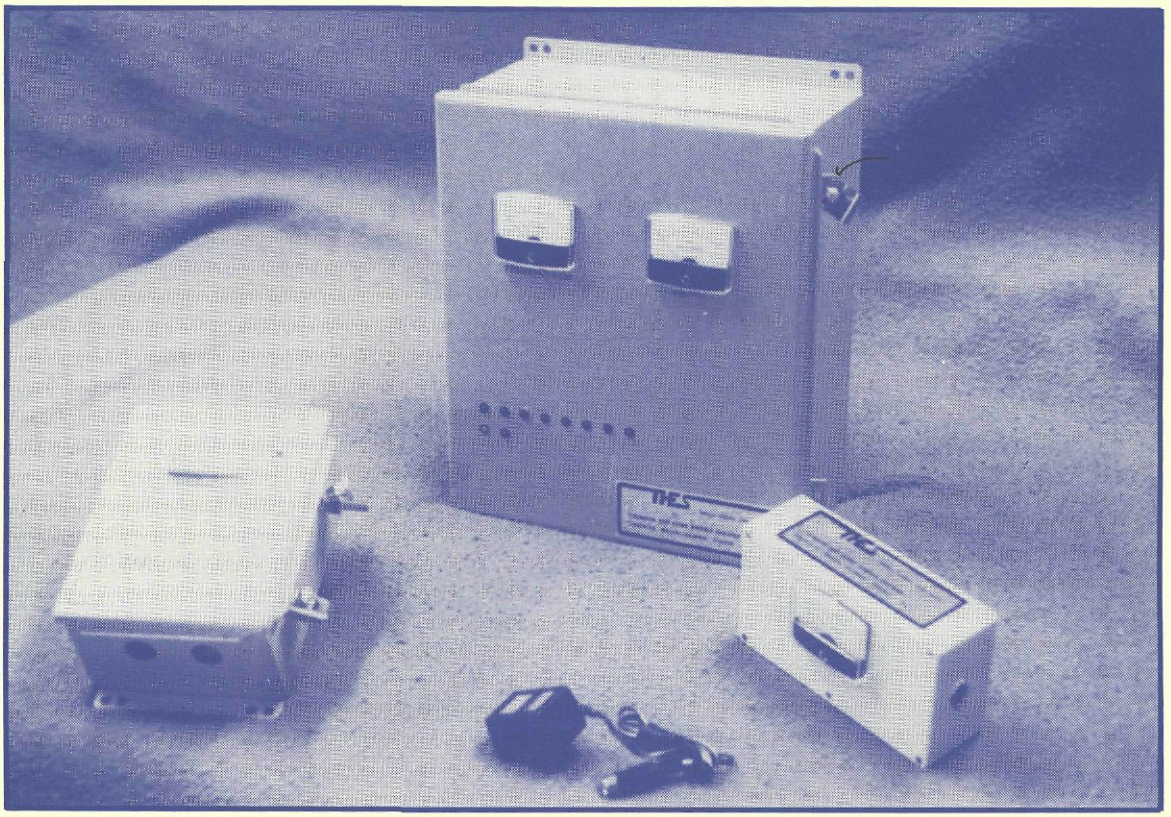
Extra fixed nozzles are available for virtually any flow and head situation under the maximum size for your turbine. Specify flow and effective head when ordering extra nozzles.

Custom Turbines:

Available from CANYON INDUSTRIES, INC. may include options not listed above. Please contact CANYON designers with your specific needs.

CONTROLS

CANYON INDUSTRIES offers a complete line of electronic control systems manufactured by Thomson and Howe Energy Systems. Canyon Industries has tested Thomson and Howe control systems for eight years, and recommends them exclusively for all independent hydroelectric systems. Continuing research and development by Thomson & Howe ensures our customers of the best state-of-the-art control devices.



Product "E"
Frequency Guard Relay

Product "A"
Modular Computerized Load Control Governor

Product "F"
Portable Power Monitor

Product "J" — "Junior Load Controller" (not pictured)

A Thomson & Howe electronic load controller to provide 60 hertz governing for single phase synchronous A.C. hydroelectric generators where minimal cost is of paramount importance.

Applicable systems: 1. stand alone synchronous plants with no need for load management.
2. Single phase 120 or 240 volts, less than 4000 watts at 240 volts or 2000 watts at 120 volts.

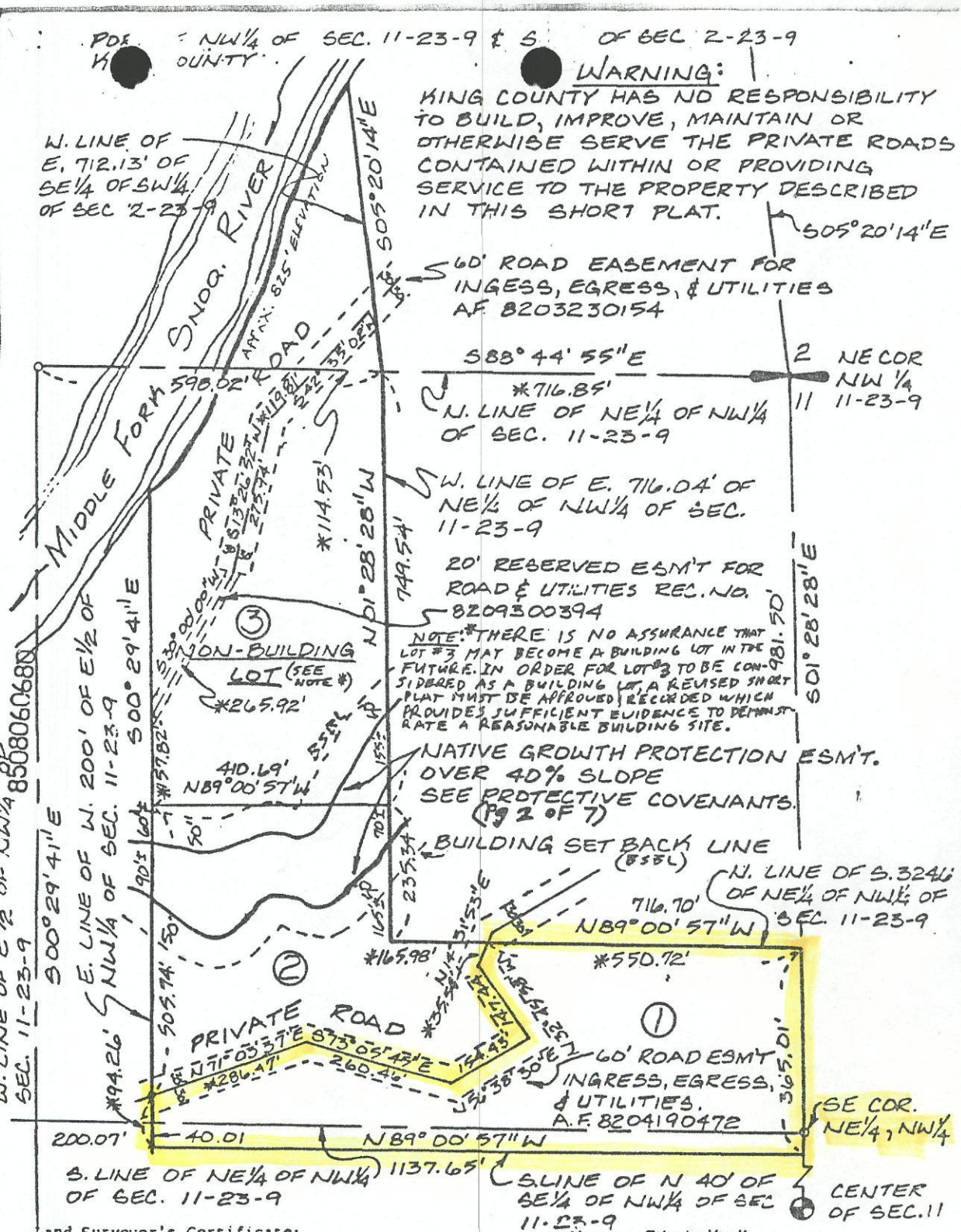
Description: The "Junior is a true analog type frequency monitoring governor. The "Junior is housed in a single ventilated steel enclosure weighing 6 lbs. The enclosure is 10" wide by 6" high by 6" deep.

Product "A" — "Computerized Load Control Governor"

The purpose of the Thomson & Howe load control governor is to provide 60 Hertz governing on independent, stand alone A.C. Hydroelectric power systems of less than 100 KW (200 KW with double triac option). It also provides automatic control of loads in eight levels of priority by the use of remote relays. This can provide a large increase in the usefulness of the generation and can also automatically prevent overloading of the plant by shedding loads during peak loading.

Applicable systems: 1. Stand alone systems with 1 KW to 200 KW generation connected.
2. 120/240 or 240/280 volt single phase, 208, or 240, or 416 volt 3 phase.

Description: The product "A" is housed in a non-ventilated steel enclosure. The enclosure is 12 inches wide by 14 inches high by 6 inches deep. The front panel has a frequency meter and load meter as well as lights that indicate the status of the various managed loads.



Land Surveyor's Certificate:

This short plat correctly represents a survey made by me or under my direction in conformance with the requirements of appropriate state and county statute and ordinance.

2/9/85
Date

A. Chicklero

Certificate No: 12786

Short Plat No. 284020R

AL. CHICKLERO STATE OF WASHINGTON REGISTERED PROFESSIONAL LAND SURVEYOR

AUG 6 1985